

DISCUSSION OF THE AMENDMENT

Claims 12 and 22 have been amended by replacing “a 91/9 to 97/3 by weight mixture of an organic solvent comprising ethanol and water” and “1 to 10” with appropriate language, as supported in the specification at paragraphs [0012] and [0031] in combination, and [0037], respectively.

Dependent claims have been amended to be consistent therewith, where applicable.

No new matter is believed to have been added by the above amendment. Claims 1-12, 14, 16, 18-23, 26 and 28-29 remain pending in the application. Claims 12, 14, 16, 18-19, 22, 23, 26 and 28-29 are active; Claims 1-11, 20 and 21 stand withdrawn from consideration as drawn to a non-elected invention.

### REMARKS

Due to the length of the specification herein, Applicants will cite to the paragraph number of the published patent application (PG Pub) of the present application, i.e., US 2007/0128327, when discussing the application description, rather than to page and line of the specification as filed.

The rejections under 35 U.S.C. § 103(a) of:

Claims 12, 16, 22 and 29 as unpatentable over Funahashi et al (JP 2000-166466) in view of Katz (US 4,324,840), Klima et al (US 4976979) and Ito et al (JP 2002-153211), and in further view of Yuan et al (CN 1421426) and Chang et al (Food Chemistry 68, 2000, pages 109-113) (Rejection 1);

Claim 14 and 25<sup>1</sup> as unpatentable over the art applied in Rejection 1, and additionally in view of Tsai et al '256 (U.S. 4,935,256);

Claim 18 as unpatentable over the art applied in Rejection 1, and additionally in view of Clausi et al (EP 0167399), Wolnzach (DE 3414767) and Wang (CN 1141727);

Claim 19 as unpatentable over the art applied in Rejection 1, and additionally in view of Yumoto et al (JP 10-004919), Tsai et al '701 (U.S. 4,946,701) and Niino et al (U.S. 2003/0185950);

Claim 23 as unpatentable over the art applied in Rejection 1, and additionally in view of Nakamura et al (JP 06-142405);

Claim 26 as unpatentable over the art applied in Rejection 1, and additionally in view of Kuraray coal as evidenced by Okamoto et al (U.S. 4,026,795) and Inagaki et al (U.S. 5,393,329); and

Claim 28 as unpatentable over the art applied in Rejection 1, and additionally in view of Hatano et al (EP 1120379),

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<sup>1</sup> Claim 25 was previously canceled.

are all respectfully traversed.

Applicants maintain the arguments made in traversal of the above rejections in the previous response, to the extent they rely on previously-applied art, which arguments are hereby incorporated by reference. Only Ito et al, Yuan et al and Chang et al are newly-applied.

Ito et al<sup>2</sup> is drawn to a method for producing an extracted solution of tea containing tannin, caffeine and acrylic acids obtained by extracting tea with water into contact with activated carbon and removing astringency so as to make 0.1-30 wt% amino acid content based on solid content.

According to the Examiner, Ito et al discloses a combination of activated carbon and clay for absorbing tea extract components at paragraphs [0020]-[0021] and [0045] “for the purpose of removing astringency and for removing [sic]” The Examiner finds that “[t]herefore, the art teaches that activated clay and activated carbon are conventional adsorbing materials that the art has conventionally used to lower the levels of caffeine from a tea extract.”

At paragraphs [0020]-[0021] and [0045] of Ito et al is disclosed a commercial diatomaceous earth product known as “Silicalite” for removing activated carbon. The Examiner apparently assumes that this commercial product is an acid or activated clay. However, insufficient information is disclosed to make that determination. Nevertheless, even if the product is an acid or activated clay, Ito et al does **not** disclose the combination of activated carbon and acid or activated clay for removing caffeine, let alone that the combination provides superior results to the use of either alone, as shown by the comparative data of record.

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<sup>2</sup> Although the Examiner refers to [an English] machine translation of Ito et al, no such translation has been made of record.

Yuan et al discloses a method for preparing tea polyphenol with a high catechin content and a low caffeine content. Particularly, Yuan et al discloses the use of a “dual ingredient organic solvent” for decaffeination which may be, dichloromethane and ethanol, dichloromethane and acetone, trichloromethane and ethanol, or trichloromethane and acetone (page 7). Yuan et al also discloses the combination of 95% ethanol and activated charcoal for removing color (page 6).

Chang et al is drawn to a study presenting a novel packed-column extractor coupled with an absorption system to improve the quality of green tea essential oils, extracted by using high-pressure carbon dioxide, the results of which show that the mean contents in the extract are 4.4-fold higher by addition of 95% ethanol than by addition of water, and that the ratio of polyphenols to caffeine is highest in the Soxhlet ethanol extraction (Abstract).

Funahashi et al, Katz and Klima et al are relied on for the same reasons as in the previous Office Action.

The Examiner finds that Claims 12 and 22 differ from Funahashi et al in specifically reciting that the green tea extract is contacted with both activated carbon and acid or active clay, but holds that it would have been obvious to use the activated carbon and the acid or active clay in combination in view of the combination Katz and Klima et al and Ito et al, and to employ such combination with a 95% ethanol composition in view of Yuan et al and Chang et al.

In reply, the Examiner leaves out the disclosures in Funahashi et al that extraction is carried out with a 20-60 % by volume aqueous solution of ethanol [0011]. In view of the density of ethanol being about 0.79 g/ml, the % by weight range of ethanol is even lower.

Thus, without the present disclosure as a guide, one of ordinary skill in the art would not have replaced this particular solution with a 95% ethanol solution.

The Examiner finds that the declaration under 37 C.F.R. § 1.132 filed December 29, 2010 (First Sato Declaration) is ineffective to overcome the rejections. The Examiner's basis is that the Sato Declaration contains no comparative examples.

In reply, the First Sato Declaration is intended to be considered with all of other comparative data of record. The table reproduced at page 10 of the previous response was intended to show a comparison between the data in the First Sato Declaration as well as data for Example 1 and Comparative Example 1 of the specification.

In response to Applicants' argument that there is no suggestion by Funahashi et al to use a 91-97% organic solvent in water to reduce caffeine content and keep content high and maintain good color, the Examiner finds that "Funahashi et al already teaches the use of adsorbents for the purpose of removing impurities and caffeine from green tea extract," relying on paragraph [0033], and that "the art teaches employing both activated carbon and activated clay for the same purposes as Applicants', for maintaining a desired color and for removing caffeine." The Examiner adds that it would have been obvious that "since the presence of caffeine can result in the complexing of caffeine with other components in green tea which would result in a change in the color, that to remove caffeine would have been advantageous for the purpose of preventing this change in color." The Examiner continues that therefore, "the teachings of the art reasonably lead one having ordinary skill in the art to not only employ 95% ethanol and 5% water but to employ together both activated carbon and acid or activated clay for Applicants' purpose. The art even teaches the claimed amount of both the activated or acid clay and the activated carbon as recited in Claims 12 and 22." The Examiner therefore holds that "one having ordinary skill in the art would have been reasonably able to employ particular amounts of acid or activated clay and activated carbon as well as the organic solvent and water composition for the purpose of achieving the desired caffeine removal and desired color to the green tea extract."

In response to Applicants' argument that there is no disclosure in Katz of using both activated carbon with an acid or activated clay and thus an enhanced removal of caffeine cannot be suggested, the Examiner finds that Katz "does indeed teach that both activated carbon and clay can be employed in combination for the purpose of removing caffeine," relying on column 6, lines 26-30 ("combinations of these"). The Examiner adds that Ito et al "also teach using both clays and activated carbon together."

In response to Applicants' argument that "addition example 3" shows that the use of 20g of activated carbon and 20g of activated clay together provided more effective caffeine removal, higher catechin concentration and lower adsorbents compared to 100g of acid clay alone, and similar arguments based on comparing example 1 with additional comparative example 3, the Examiner finds that, in view of at least Yuan et al, "who teaches the use of activated carbon for removing color and removing caffeine, it is not seen to be unexpected to improve on the results where two different types of adsorbents have been employed, compared to when only the one type of adsorbent has been employed."

In response to Applicants' argument that since comparative example 4 had a greater caffeine content and lower adsorbance that this provides evidence that the concentration of caffeine is not directly proportional to the degree of coloration such that the Examiner's speculation as to a reduced caffeine content providing and expectation of reduced degree of coloration is rebutted, the Examiner states that he did not assert that "there is a direct and proportional relationship between caffeine content and color, but rather that the art recognized that caffeine plays a factor in the color of the green tea extract. The art teaches that there are other components that contribute to the colors in green tea extracts, such as heavy metals," relying on paragraph [0024] of Funahashi et al.

In response to Applicants' argument that Niino et al does not support the conclusion that decreased caffeine content would have reduced the coloration because Niino et al

identifies complexes formed with oxidized polyphenol with caffeine, proteins, pectin or polysaccharides, catalyzed by metal ions to form a complex and thus, since coloration is principally a result of an oxidized polyphenol complex, the concentration of caffeine is not demonstrated to be proportional to coloration, the Examiner finds that “paragraph [0006] states that as the complexes are formed, green tea beverage turns the color from clear to light green to brown. It is noted that ‘the complexes’ refers to the oxidized polyphenol binding with caffeine, proteins, pectin or polysaccharides. Therefore, this would have taught one having ordinary skill that a complex with caffeine can contribute to changing of the color of the green tea extract and thus removal of caffeine so that this complex could not form would also have aided in preventing a change in color of the green tea extract.”

In response to Applicants’ argument that Funahashi et al discloses the use of 40% ethanol (by volume) in their examples and thus there is no disclosure of an ethanol to water ratio as claimed, the Examiner finds that “the art teaches employing 95% ethanol for the same purpose as Applicants’ and Funahashi et al also employs ethanol for purifying a green tea extract. Therefore, to modify Funahashi et al and employ 95% ethanol when the art also teaches employing 95% ethanol for removing caffeine and undesired precipitates would thus have been an obvious result effective variable, routinely determined through experimentation.”

In reply, this response has already been responded to above.

The newly-submitted Second Sato Declaration is being filed to demonstrate the significance of the presence of activated carbon, and acid or activated clay, in a ratio range as recited in the claims, i.e., carbon : clay of from 1:1 to 1:10. Two new comparative examples, labeled Addition comparative Example 1 and Addition comparative Example 2, respectively, were prepared, analogously to the preparation of Example 1 as described in the specification, except that Addition comparative Example 1 had an activated carbon: acid clay ratio of 1:0.5,

and Addition comparative Example 2 had an activated carbon: acid clay ratio of 1:15. Thus, each Addition comparative Example was either below or above the recited ratio. The Addition comparative Examples were assessed in the same manner as described in the specification for Example 1, and as detailed at Table 1. In addition, Example 1 and the Addition comparative Examples were assessed for yield of non-polymer catechins and for tastes and flavors. As the data show, Addition comparative Example 1 was inferior to Example 1 with regard to sensing of a coarse taste; Addition comparative Example 2 was inferior to Example 1 with regard to an unusual or earthy smell.

In sum, while no *prima facie* case of obviousness has been made out, nevertheless, the Second Sato Declaration provides additional evidence of patentability, not only in the combined use of an activated carbon and acid or activated clay component, but in a particular ratio range.

Finally, whether or not there is a *prima facie* case of obviousness, all the evidence of record must be considered. Evidence presented to demonstrate patentability cannot be evaluated simply for its knock-down ability, even if the Examiner finds that the presently-claimed invention is *prima facie* obvious. As stated in *In re Carleton*, 599 F.2d 1021, 1024, 202 USPQ 165, 168-69 (CCPA 1979):

If the applicant presents rebuttal evidence, the decision-maker must consider all of the evidence of record (both that supporting and that rebutting the *prima facie* case) in determining whether the subject matter as a whole would have been obvious. [footnote omitted] *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976); *In re Lewis*, 443 F.2d 389, 170 USPQ 84 (CCPA 1971). The correct procedure for considering rebuttal evidence was set forth by this court in *In re Rinehart*, *supra* at 1052, 189 USPQ at 147:

Though the burden of going forward to rebut the *prima facie* case remains with the applicant, the question of whether that burden has been successfully carried requires that the entire path to decision be retraced. An earlier decision should not, as it was here, be considered as set in concrete, and applicant's rebuttal evidence then be evaluated only on its knockdown ability. Analytical fixation on an earlier decision can tend to provide that decision with an undeservedly broadened umbrella effect. *Prima facie* obviousness is a legal conclusion, not a fact.



Facts established by rebuttal evidence must be evaluated along with the facts on which the earlier conclusion was reached, not against the conclusion itself. Though the tribunal must begin anew, a final finding of obviousness may of course be reached, but such finding will rest upon evaluation of all facts in evidence, uninfluenced by any earlier conclusion reached by an earlier board upon a different record.

For all the above reasons, it is respectfully requested that the rejection's be withdrawn.

The rejection of Claims 12, 14, 16, 18, 19, 22, 23, 26, 28 and 29 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement, is respectfully traversed. Indeed, the rejection would now appear to be moot in view of the above-discussed amendment. Accordingly, it is respectfully requested that the rejection be withdrawn.

The rejection of Claims 12, 14, 16, 18, 19, 22, 23, 26, 28 and 29 under 35 U.S.C. § 112, second paragraph, as indefinite, is respectfully traversed. Indeed, the rejection would not appear to be moot in view of the above-discussed amendment. Accordingly, it is respectfully requested that the rejection be withdrawn.

All of the presently-active claims in this application are now believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Customer Number

**22850**

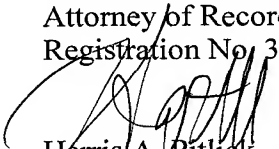
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Respectfully submitted,

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